.NET Remoting Using Visual C# 2005

Meet the expert: Barry Solomon has over 23 years of experience as a consultant. He has developed with Fortran, C, C , Visual Basic, Java, and Visual C#. His extensive database experience includes working with Microsoft Access, Microsoft SQL Server, MySQL, and Oracle. His expertise now includes working with big data, Hadoop in particular, and all of its attending ecosystems as the limitations have been exceeded in most modern database systems.

Prerequisites: This course assumes that students have some programming background and is appropriate for experienced application developers with more than three years of development and at minimum one year experience with .NET. Specific experience with Visual Studio 2005 or the .NET Framework is extremely useful. This course moves quickly through a broad range of advanced programming topics. Prior knowledge of distributed technologies such as DCOM or COM+ is useful.

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Course description: Remoting allows programs and software components to interact across application domains, processes and machine boundaries. This course covers many aspects of .NET remoting in-depth. You will learn how the .NET remoting architecture provides a means of establishing and working with secure, distributed enterprise level applications. You will also build a solid foundation for the development of remoting, and gain an understanding of client- and server-activated objects.

Course outline:

Remoting Basics
- Introduction
- Overview: Remoting
- Remoting Basics
- Serialization
- Activation Modes
- Remoting Classes
- Object Lifetime
- Hosting
- Activation
- Channels
- Remote Objects/Hosts
- Demo: Remoting Object
- Summary

The Hosting Application
- Introduction
- Overview
- Programmatic Config
- User Config Files
- Demo: Prog Config
- Demo: User Config Files
- Debugging / Deployment
- Client Deployment
- SoapSuds
- Summary

Remoting and Serialization
- Introduction
- Version Tolerant
- Serialization Callbacks
- OptionalField
- Versioning Practices
- Demo: Serialization
- Summary

Formatters / Interfaces
- Introduction
- Formatters / Comm Channels
- Customized Channels
- Sink Providers
- Marshal by Value
- Marshal by Reference
- Interface Usage
- Demo: Interface Usage
- Version Compatibility
- Interface Versioning
- Hosting App Settings
- Client App Settings
- Demo: Work w/Versions
- Summary

Generics
- Introduction
- Overview
- Demo: Set Up Interface
- Demo: Remoting Class
- Demo: Set Up Host
- Demo: Set Up Client
- Demo: Run Client App
- Summary

Async Operations
- Introduction
- Overview
- SoapSuds
- Delegates
- Polling
- BeginInvoke/EndInvoke
- Demo: Async/Sync Delegates
- Callbacks
- Threads
- Demo: Callbacks
- Demo: Threads
- Summary

Events / One Way Methods
- Introduction
- Overview: Events
- Customized Remoting Events
- Events as Delegates
- Demo: Events
- Delegates in lieu of Events
- One-Way Method
- Demo: One-Way Method
- Summary

Lifetime Management/Leases
- Introduction
- Overview
- Initialize the Lifetime
- Leases
- Lease Properties
- Lease Methods
- Lease State
- LifetimeServices Object
- Leases/Remote Objects
- Lease Renewal Props
- Demo: Lease Renewal
- Summary

Lifetime Cycle / Sponsors
- Introduction
- Lease Managers
- Expiration Exceptions
- General Exceptions
- Remoting Exceptions
- Remote Timeout Exceptions
- Socket Exceptions
- Remote Object Life Cycle
- Lifetime Sponsors
- Sponsors
- Sponsor Lease Renewal
- Demo: Sponsors
- Summary

Message Queues
- Introduction
- Overview
- Create a Queue
- Demo: Check MSMQ
- Demo: Setup MSMQ
- Demo: Examine MSMQ
- Create Queue w/MSMQ
- Create Queue w/Prog.
- Send Messages

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- Transactions
- Demo: Send Messages
- Demo: Transactional Types
- Summary

Objects/Serviced Components
- Introduction
- Objects
- Receive Messages
- Demo: Objects
- Demo: Generics
- Demo: Receive Messages
- MSMQ/Serviced Components
- Demo: Serviced Components
- Summary

Security/IIS Integration
- Introduction
- Overview
- Permissions
- Handle Perms in MMC
- Handle Perms in Code
- Demo: Perms in MMC
- Demo: Perms in Code
- Encryption
- Message Enumeration
- Demo: Encryption
- Demo: Certificates
- Demo: Message Enumeration
- Improvements and Changes
- Triggers
- Rules
- Demo: Rules
- Demo: View a Trigger
- Demo: View Rules
- Invocation Parameters
- Demo: Create New Rule
- Demo: Triggers
- Summary

Overview: Serviced Comp.
- Introduction
- Overview
- Why Serviced Components
- JIT Activation
- Loosely Coupled Events (LCE)
- Object Construction
- Object Pooling
- Private/Queued Components
- Role-based Security
- SOAP Services
- Synchronization
- Transactions
- The Serviced Component
- Inherit from
- DefaultConstructors
- ComVisible
- Activation
- Strong Naming
- Registration Methods
- Demo: Serviced Component
- Summary

Attributes / Security
- Introduction
- Serviced Component Attribs
- JIT Activation
- Object Construction
- Object Pooling
- Private Components
- Queued Components
- Transactions
- Role-based Security
- Demo: Serviced Comp Attribs
- Summary

Interfaces / COM+
- Introduction
- Overview
- Consume Serviced Comp.
- Side-by-side Versioning
- Demo: Interfaces
- Summary

IIS Security
- Introduction
- Activation Agent
- IIS Authentication
- IIS Integration
- Demo: Examine IIS Interface
- Demo: Examine Client Code
- Demo: Set Up IIS
- Summary

Code Access Security (CAS)
- Introduction
- .NET 2.0 Security
- Code Access Security (CAS)
- CAS - Permissions
- CAS - Group Permissions
- CAS - Permissions Types
- CAS - Membership Conditions
- CAS - Built in Permission Sets
- Frmwrk Configuration Tools
- Demo: Permission Sets
- Demo: Code Groups
- Summary

Programmatic Security
- Introduction
- Working with Code
- Declarative Security
- Role-based Security
- Encryption
- Security Libraries
- Demo: Security
- Demo: Encryption
- Demo: Role-based Security
- Run the Security App
- Summary